LISTING OF THE CLAIMS (1-172)

Claims 1-3 (Cancelled)

Claim 4 (Currently amended): A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate; and

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure;

~~The flat panel display apparatus of Claim 1~~ wherein said spacer structure is comprised of alumina doped with cerium oxide.

Claim 5 (Cancelled)

Claim 6 (Currently amended): ~~The flat panel display apparatus of Claim 5 wherein said~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a

layered material that is oriented with its basal plane parallel to a face of said spacer structure.

Claim 7 (Cancelled)

Claim 8 (Cancelled)

Claim 9 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a metal oxide having the composition ABO_3, where A and B are transition metals.

Claim 10 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a metal oxide having the composition A_2BO_4, where A and B are transition metals.

Claim 11 (Original): The flat panel display apparatus of Claim 9 wherein said transitional metals A and B are mixed with alternating valence.

Claim 12 (Original): The flat panel display apparatus of Claim 11 wherein said coating material is comprised of $La_xBa_{(1-x)}TiO_3$.

Claim 13 (Original): The flat panel display apparatus of Claim 9 wherein said transitional metals A and B have the same valence and have different energy unoccupied states in the band gap.

Claim 14 (Original): The flat panel display apparatus of Claim 13 wherein said coating material is comprised of $SrTi_xZr_{(1-x)}O_3$.

Claim 15 (Original): The flat panel display apparatus of Claim 9 wherein said transitional metals A and B are atoms of different size and are mixed on the same lattice site.

Claim 16 (Original): The flat panel display apparatus of Claim 15 wherein said coating material is comprised of $La_xY_{(1-x)}CrO_3$.

Claim 17 (Cancelled)

Claim 18 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a combination of boron nitride and carbon.

Claim 19 (Cancelled)

Claim 20 (Original): The flat panel display apparatus of Claim 18 wherein said combination of boron nitride and carbon is deposited to a thickness of greater than approximately 15 Angstroms.

Claim 21 (Cancelled)

Claim 22 (Cancelled)

Claim 23 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of an oxygen releasing material.

Claim 24 (Original): The flat panel display apparatus of Claim 23 wherein said oxygen releasing material is an oxidizer.

Claim 25 (Original): The flat panel display apparatus of Claim 23 wherein said coating material is selected from the group consisting of: perchlorates, peroxides, and nitrates.

Claim 26 (Original): The flat panel display apparatus of Claim 23 wherein said coating material is comprised of $KClO_4$.

Claim 27 (Currently amended): ~~The flat panel display apparatus of Claim 1~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate; and

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure, wherein said spacer structure is comprised of an oxygen releasing material.

Claim 28 (Original): The flat panel display apparatus of Claim 27 wherein said oxygen releasing material is an oxidizer.

Claim 29 (Currently amended): ~~The flat panel display apparatus of Claim 27~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate; and

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure, wherein said spacer structure is comprised of a material selected from the group consisting of: perchlorates, peroxides, and nitrates.

Claim 30 (Original): The flat panel display apparatus of Claim 27 wherein said spacer structure is comprised of $KClO_4$.

Claim 31 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of insulated metal-containing particles.

Claim 32 (Original): The flat panel display apparatus of Claim 31 wherein said insulated metal-containing particles are comprised of a core of metal material at least partially encapsulated by an insulating shell.

Claim 33 (Original): The flat panel display apparatus of Claim 32 wherein said insulating shell has sufficient thickness such that, at low incident electron energies, electrons will not penetrate said insulating shell.

Claim 34 (Original): The flat panel display apparatus of Claim 32 wherein said insulating shell has sufficient thickness such that, at high incident electron energies, electrons will penetrate said insulating shell.

Claim 35 (Original): The flat panel display apparatus of Claim 32 wherein said insulating shell has a thickness of approximately 20-200 Angstroms.

Claim 36 (Original): The flat panel display apparatus of Claim 32 wherein said core of metal material has a diameter of approximately 1,000-10,000 Angstroms.

Claim 37 (Original): The flat panel display apparatus of Claim 32 wherein said core of metal material is formed of material selected

from the group consisting of: Si, Al, Ti, Cr, Zr, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu.

Claim 38 (Original): The flat panel display apparatus of Claim 32 wherein said insulating shell is comprised of oxygen reacted with material selected from the group consisting of: Si, Al, Ti, Cr, Zr, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu.

Claim 39 (Original): The flat panel display apparatus of Claim 32 wherein said insulating shell is comprised of nitrogen reacted with material selected from the group consisting of: Si, Al, Ti, Cr, Zr, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu.

Claim 40 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of metal material impregnated into a porous matrix.

Claim 41 (Original): The flat panel display apparatus of Claim 40 wherein said metal material impregnated into a porous matrix is comprised of a zeolite structure.

Claim 42 (Original): The flat panel display apparatus of Claim 31 wherein said insulated metal-containing particles are dip-coated onto said spacer structure.

Claim 43 (Original): The flat panel display apparatus of Claim 31 wherein said insulated metal-containing particles are spray-coated onto said spacer structure.

Claim 44 (Original): The flat panel display apparatus of Claim 31 wherein said insulated metal-containing particles are suspended in a colloidal solution during application to said spacer structure.

Claim 45 (Original): The flat panel display apparatus of Claim 31 wherein said insulated metal-containing particles are applied to said spacer structure such that said insulated metal-containing particles are substantially separated from each other.

Claim 46 (Original): The flat panel display apparatus of Claim 40 wherein said metal material impregnated into said porous matrix is dip-coated onto said spacer structure.

Claim 47 (Original): The flat panel display apparatus of Claim 40 wherein said metal material impregnated into said porous matrix is spray-coated onto said spacer structure.

Claim 48 (Original): The flat panel display apparatus of Claim 40 wherein said metal material impregnated into said porous matrix is suspended in a colloidal solution during application to said spacer structure.

Claim 49 (Original): The flat panel display apparatus of Claim 40 wherein said metal material impregnated into said porous matrix is applied to said spacer structure such that adjacent particles of said metal material impregnated into said porous matrix are substantially separated from each other.

Claim 50 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary

electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of CeO_2 doped with lanthanide ions such that resistivity of said coating material is stabilized against variations in oxygen-related parameters occurring during operation of said flat panel display apparatus.

Claim 51 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of CeO_2 doped with Cr ions such that resistivity of said coating material is stabilized against variations in oxygen-related parameters occurring during operation of said flat panel display apparatus.

Claim 52 (Original): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed

environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of CeO_2 doped with Ni ions such that resistivity of said coating material is stabilized against variations in oxygen-related parameters occurring during operation of said flat panel display apparatus.

Claim 53 (Cancelled)

Claim 54 (Cancelled)

Claim 55 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a layer of TiN which was deposited onto and annealed to a layer of boron nitride.

Claim 56 (Original): The flat panel display apparatus of Claim 55 wherein said layer of TiN was deposited to a thickness of approximately 10-300 Angstroms onto said layer of boron nitride.

Claim 57 (Original): The flat panel display apparatus of Claim 55 wherein said layer of boron nitride, onto which said layer of TiN was deposited, has a thickness of approximately 50-2000 Angstroms.

Claim 58 (Original): The flat panel display apparatus of Claim 55 wherein said layer of TiN was deposited onto said layer of boron nitride in the presence of N_2.

Claim 59 (Original): The flat panel display apparatus of Claim 58 wherein said layer of TiN was deposited onto said layer of boron nitride in the presence of said N_2 at a partial pressure of approximately 20-100 milliTorr.

Claim 60 (Original): The flat panel display apparatus of Claim 55 wherein said layer of TiN and boron nitride is annealed at a temperature of approximately 500-900 degrees Celsius.

Claim 61 (Original): The flat panel display apparatus of Claim 60 wherein said layer of TiN and boron nitride is annealed at a temperature of approximately 500-900 degrees Celsius in an N_2 atmosphere.

Claim 62 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a layer of TiAl which was deposited onto and annealed to a layer of boron nitride.

Claim 63 (Original): The flat panel display apparatus of Claim 62 wherein said layer of TiAl was deposited to a thickness of approximately 10-300 Angstroms onto said layer of boron nitride.

Claim 64 (Original): The flat panel display apparatus of Claim 62 wherein said layer of boron nitride, onto which said layer of TiN was deposited, has a thickness of approximately 50-2000 Angstroms.

Claim 65 (Original): The flat panel display apparatus of Claim 62 wherein said layer of TiAl was deposited onto said layer of boron nitride in the presence of N_2.

Claim 66 (Original): The flat panel display apparatus of Claim 65 wherein said layer of TiAl was deposited onto said layer of boron nitride in the presence of said N_2 at a partial pressure of approximately 20-100 milliTorr.

Claim 67 (Original): The flat panel display apparatus of Claim 62 wherein said layer of TiAl and boron nitride is annealed at a temperature of approximately 500-900 degrees Celsius.

Claim 68 (Original): The flat panel display apparatus of Claim 67 wherein said layer of TiAl and boron nitride is annealed at a temperature of approximately 500-900 degrees Celsius in an N_2 atmosphere.

Claim 69 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a layer of TiN overlying a layer of boron nitride.

Claim 70 (Original): The flat panel display apparatus of Claim 69 wherein said layer of TiN has a thickness of approximately 10-300 Angstroms.

Claim 71 (Original): The flat panel display apparatus of Claim 69 wherein said layer of boron nitride has a thickness of approximately 50-2000 Angstroms.

Claim 72 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a layer of TiAl overlying a layer of boron nitride.

Claim 73 (Original): The flat panel display apparatus of Claim 72 wherein said layer of TiAl has a thickness of approximately 10-300 Angstroms.

Claim 74 (Original): The flat panel display apparatus of Claim 72 wherein said layer of boron nitride has a thickness of approximately 50-2000 Angstroms.

Claim 75 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said spacer structure is comprised of ceramic boron nitride.

Claim 76 (Original): The flat panel display apparatus of Claim 75 wherein said coating material is comprised of a layer of TiN which has been deposited onto and annealed with said ceramic boron nitride spacer structure.

Claim 77 (Original): The flat panel display apparatus of Claim 76 wherein said layer of TiN was deposited to a thickness of approximately 10-300 Angstroms onto said ceramic boron nitride spacer structure.

Claim 78 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of Nd_2O_3.

Claim 79 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure. wherein said coating material is comprised of a material selected from the group consisting of: Cr_2O_3-Nd_2O_3, Nd_2O_3-MnO, and Cr_2O_3-MnO.

Claim 80-82 (Cancelled)

Claim 83 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is formed of a first layer of material and a second layer of material wherein said first layer of material and said second layer of material have different electron densities.

Claim 84 (Currently amended): ~~The flat panel display apparatus of Claim 2~~ A flat panel display apparatus comprising:

a faceplate;

a backplate disposed opposing said faceplate, said faceplate and said backplate adapted to be connected in a sealed environment such that a low pressure region exists between said faceplate and said backplate;

a spacer assembly disposed within said sealed environment, said spacer assembly supporting said faceplate and said backplate against forces acting in a direction towards said sealed environment, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is formed of a first layer of comprised of Cr_2O_3 and a second layer comprised of Nd_2O_3.

Claim 85 (Original): The flat panel display apparatus of Claim 84 wherein said first layer comprised of Cr_2O_3 has thickness of approximately 30 Angstroms.

Claim 86 (Original): The flat panel display apparatus of Claim 84 wherein said second layer comprised of Nd_2O_3 has thickness of approximately 100 Angstroms.

Claims 87-89 (Cancelled)

Claim 90 (Currently amended): ~~The spacer assembly of Claim 87~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure, wherein said spacer structure is comprised of alumina doped with cerium oxide.

Claim 91 (Cancelled)

Claim 92 (Currently amended): ~~The spacer assembly of Claim 91~~ A spacer assembly for use in a field emission display device, said

spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a layered material ~~wherein said layered material~~ that is oriented with its basal plane parallel to a face of said spacer structure.

Claim 93 (Currently amended): ~~The spacer assembly of Claim 91~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a layered material, wherein said layered material is a semimetal.

Claim 94 (Cancelled)

Claim 95 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a metal oxide having the composition ABO_3, where A and B are transition metals.

Claim 96 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device,

said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a metal oxide having the composition A_2BO_4, where A and B are transition metals.

Claim 97 (Original): The spacer assembly of Claim 95 wherein said transitional metals A and B are mixed with alternating valence.

Claim 98 (Original): The spacer assembly of Claim 97 wherein said coating material is comprised of $La_xBa_{(1-x)}TiO_3$.

Claim 99 (Original): The spacer assembly of Claim 95 wherein said transitional metals A and B have the same valence and have different energy unoccupied states in the band gap.

Claim 100 (Original): The spacer assembly of Claim 99 wherein said coating material is comprised of $SrTi_xZr_{(1-x)}O_3$.

Claim 101 (Original): The spacer assembly of Claim 95 wherein said transitional metals A and B are atoms of different size and are mixed on the same lattice site.

Claim 102 (Original): The spacer assembly of Claim 101 wherein said coating material is comprised of $La_xY_{(1-x)}CrO_3$.

Claim 103 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of boron nitride.

Claim 104 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a combination of boron nitride and carbon.

Claim 105 (Cancelled)

Claim 106 (Original): The spacer assembly of Claim 104 wherein said combination of boron nitride and carbon is deposited to a thickness of greater than approximately 15 Angstroms.

Claim 107 (Cancelled)

Claim 108 (Cancelled)

Claim 109 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of an oxygen releasing material.

Claim 110 (Original): The spacer assembly of Claim 109 wherein said oxygen releasing material is an oxidizer.

Claim 111 (Original): The spacer assembly of Claim 109 wherein said coating material is selected from the group consisting of: perchlorates, peroxides, and nitrates.

Claim 112 (Original): The spacer assembly of Claim 109 wherein said coating material is comprised of $KClO_4$.

Claim 113 (Currently amended): ~~The spacer assembly of Claim 87~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure, wherein said spacer structure is comprised of an oxygen releasing material.

Claim 114 (Original): The spacer assembly of Claim 113 wherein said oxygen releasing material is an oxidizer.

Claim 115 (Original): The spacer assembly of Claim 113 wherein said spacer structure is comprised of a material selected from the group consisting of: perchlorates, peroxides, and nitrates.

Claim 116 (Original): The spacer assembly of Claim 113 wherein said spacer structure is comprised of $KClO_4$.

Claim 117 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of insulated metal-containing particles.

Claim 118 (Original): The spacer assembly of Claim 117 wherein said insulated metal-containing particles are comprised of a core

of metal material at least partially encapsulated by an insulating shell.

Claim 119 (Original): The spacer assembly of Claim 118 wherein said insulating shell has sufficient thickness such that, at low flat panel display operating voltages, electrons will not penetrate said insulating shell.

Claim 120 (Original): The spacer assembly of Claim 118 wherein said insulating shell has sufficient thickness such that, at high flat panel display operating voltages, electrons will penetrate said insulating shell.

Claim 121 (Original): The spacer assembly of Claim 118 wherein said insulating shell has a thickness of approximately 20-200 Angstroms.

Claim 122 (Original): The spacer assembly of Claim 118 wherein said core of metal material has a diameter of approximately 1,000-10,000 Angstroms.

Claim 123 (Original): The spacer assembly of Claim 118 wherein said core of metal material is formed of material selected from the group consisting of: Si, Al, Ti, Cr, Zr, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu.

Claim 124 (Original): The spacer assembly of Claim 118 wherein said insulating shell is comprised of oxygen reacted with material selected from the group consisting of: Si, Al, Ti, Cr, Zr, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu.

Claim 125 (Original): The spacer assembly of Claim 118 wherein said insulating shell is comprised of nitrogen reacted with material selected from the group consisting of: Si, Al, Ti, Cr, Zr, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu.

Claim 126 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said

spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of metal material impregnated into a porous matrix.

Claim 127 (Original): The spacer assembly of Claim 126 wherein said metal material impregnated into a porous matrix is comprised of a zeolite structure.

Claim 128 (Original): The spacer assembly of Claim 117 wherein said insulated metal-containing particles are dip-coated onto said spacer structure.

Claim 129 (Original): The spacer assembly of Claim 117 wherein said insulated metal-containing particles are spray-coated onto said spacer structure.

Claim 130 (Original): The spacer assembly of Claim 117 wherein said insulated metal-containing particles are suspended in a colloidal solution during application to said spacer structure.

Claim 131 (Original): The spacer assembly of Claim 117 wherein said insulated metal-containing particles are applied to said spacer structure such that said insulated metal-containing particles are substantially separated from each other.

Claim 132 (Original): The spacer assembly of Claim 126 wherein said metal material impregnated into said porous matrix is dip-coated onto said spacer structure.

Claim 133 (Original): The spacer assembly of Claim 126 wherein said metal material impregnated into said porous matrix is spray-coated onto said spacer structure.

Claim 134 (Original): The spacer assembly of Claim 126 wherein said metal material impregnated into said porous matrix is suspended in a colloidal solution during application to said spacer structure.

Claim 135 (Original): The spacer assembly of Claim 126 wherein said metal material impregnated into said porous matrix is applied

to said spacer structure such that adjacent particles of said metal material impregnated into said porous matrix are substantially separated from each other.

Claim 136 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of CeO_2 doped with lanthanide ions such that resistivity of said coating material is stabilized against variations in oxygen-related parameters occurring during operation of said flat panel display apparatus.

Claim 137 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of CeO_2 doped with Cr ions such that resistivity of said coating material is stabilized against variations in oxygen-related parameters occurring during operation of said flat panel display apparatus.

Claim 138 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating

voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of CeO_2 doped with Ni ions such that resistivity of said coating material is stabilized against variations in oxygen-related parameters occurring during operation of said flat panel display apparatus.

Claim 139 (Cancelled)

Claim 140 (Cancelled)

Claim 141 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a layer of TiN which was deposited onto and annealed to a layer of boron nitride.

Claim 142 (Original): The spacer assembly of Claim 141 wherein said layer of TiN was deposited to a thickness of approximately 10-300 Angstroms onto said layer of boron nitride.

Claim 143 (Original): The spacer assembly of Claim 141 wherein said layer of boron nitride, onto which said layer of TiN was deposited, has a thickness of approximately 50-2000 Angstroms.

Claim 144 (Original): The spacer assembly of Claim 141 wherein said layer of TiN was deposited onto said layer of boron nitride in the presence of N_2.

Claim 145 (Original): The spacer assembly of Claim 144 wherein said layer of TiN was deposited onto said layer of boron nitride in the presence of said N_2 at a partial pressure of approximately 20-100 milliTorr.

Claim 146 (Original): The spacer assembly of Claim 141 wherein said layer of TiN and boron nitride is annealed at a temperature of approximately 500-900 degrees Celsius.

Claim 147 (Original): The spacer assembly of Claim 146 wherein said layer of TiN and boron nitride is annealed at a temperature of approximately 500-900 degrees Celsius in an N_2 atmosphere.

Claim 148 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a layer of TiAl which was deposited onto and annealed to a layer of boron nitride.

Claim 149 (Original): The spacer assembly of Claim 148 wherein said layer of TiAl was deposited to a thickness of approximately 10-300 Angstroms onto said layer of boron nitride.

Claim 150 (Original): The spacer assembly of Claim 148 wherein said layer of boron nitride, onto which said layer of TiN was deposited, has a thickness of approximately 50-2000 Angstroms.

Claim 151 (Original): The spacer assembly of Claim 148 wherein said layer of TiAl was deposited onto said layer of boron nitride in the presence of N_2.

Claim 152 (Original): The spacer assembly of Claim 151 wherein said layer of TiAl was deposited onto said layer of boron nitride in the presence of said N_2 at a partial pressure of approximately 20-100 milliTorr.

Claim 153 (Original): The spacer assembly of Claim 148 wherein said layer of TiAl and boron nitride is annealed at a temperature of approximately 500-900 degrees Celsius.

Claim 154 (Original): The spacer assembly of Claim 153 wherein said layer of TiAl and boron nitride is annealed at a temperature of approximately 500-900 degrees Celsius in an N_2 atmosphere.

Claim 155 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a layer of TiN overlying a layer of boron nitride.

Claim 156 (Original): The spacer assembly of Claim 155 wherein said layer of TiN has a thickness of approximately 10-300 Angstroms.

Claim 157 (Original): The spacer assembly of Claim 155 wherein said layer of boron nitride has a thickness of approximately 50-2000 Angstroms.

Claim 158 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a layer of TiAl overlying a layer of boron nitride.

Claim 159 (Original): The spacer assembly of Claim 158 wherein said layer of TiAl has a thickness of approximately 10-300 Angstroms.

Claim 160 (Original): The spacer assembly of Claim 158 wherein said layer of boron nitride has a thickness of approximately 50-2000 Angstroms.

Claim 161 (Original): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said spacer structure is comprised of ceramic boron nitride.

Claim 162 (Original): The spacer assembly of Claim 161 wherein said coating material is comprised of a layer of TiN which has been deposited onto and annealed with said ceramic boron nitride spacer structure.

Claim 163 (Original): The spacer assembly of Claim 162 wherein said layer of TiN was deposited to a thickness of approximately 10-300 Angstroms onto said ceramic boron nitride spacer structure.

Claim 164 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of Nd_2O_3.

Claim 165 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said

spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is comprised of a material selected from the group consisting of: Cr_2O_3-Nd_2O_3, Nd_2O_3-MnO, and Cr_2O_3-MnO.

Claim 166 -168 (Cancelled)

Claim 169 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is formed of a first layer of material and a second layer of material wherein said first layer of material and said second layer of material have different electron densities.

Claim 170 (Currently amended): ~~The spacer assembly of Claim 88~~ A spacer assembly for use in a field emission display device, said spacer assembly adapted to support a faceplate and a backplate against forces acting in a direction towards each other, said spacer assembly tailored to provide a secondary electron emission coefficient of approximately 1 for said spacer assembly when said spacer assembly is subjected to flat panel display operating voltages, said spacer assembly further including a spacer structure; and

a coating material applied to at least a portion of said spacer structure, wherein said coating material is formed of a first layer of comprised of Cr_2O_3 and a second layer comprised of Nd_2O_3.

Claim 171 (Original): The spacer assembly of Claim 170 wherein said first layer comprised of Cr_2O_3 has thickness of approximately 30 Angstroms.

Claim 172 (Original): The spacer assembly of Claim 170 wherein said second layer comprised of Nd_2O_3 has thickness of approximately 100 Angstroms.